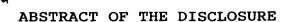
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An optical fiber is fabricated provided with a refractive index profile having a central core; a middle part provided around the outer periphery of the central core and having a lower refractive index than that of the central core; and a cladding provided around the periphery of the middle part and having a higher refractive index than the middle part and a lower refractive index than the central core. This optical fiber has an effective core area of 120 μm^2 or more in an employed wavelength band selected from the range of 1.53~1.63 μm, and has a cut-off wavelength that is capable of substantially single mode propagation in the aforementioned employed wavelength band. As a result, it is possible to construct an optical transmission system having excellent transmission characteristics in which nonlinearity aredecreased.